AMENDMENTS TO THE CLAIMS

Please cancel Claims 17-21 and 23-40.

1-40. (Cancelled)

41. (Previously presented) A method of depositing thin films by atomic layer deposition, wherein at least first and second vapor-phase reactants are alternately fed to a reaction space including a reaction chamber from separate inflow channels, the reaction space defining a reaction space volume X, the method comprising a plurality of cycles in which each cycle forms a saturated monolayer and includes:

in a first pulse, flowing the first vapor-phase reactant through a first inflow channel opening directly into the reaction chamber, the reaction chamber housing a substrate upon which a thin film is to be deposited;

in the first pulse, flowing only an inactive gas through a second inflow channel while flowing the first vapor-phase reactant through the first inflow channel, the second inflow channel opening directly into the reaction chamber;

in a second pulse, flowing the second vapor-phase reactant through the second inflow channel;

in the second pulse, flowing only an inactive gas through the first inflow channel while the second vapor-phase reactant flows through the second inflow channel; and

moving a volume of at least 2X of inactive gas through the reaction space in an interval between each two successive pulses of the first and second vapor-phase reactants such that reactant molecules adsorbed on the walls of the reaction space are removed, the reaction space defined by the reaction chamber, the first inflow channel and the second inflow channel.

42. (Previously presented) The method of Claim 41, further comprising allowing the first vapor-phase reactant from the first inflow channel to mix with the inactive gas from the second inflow channel within the reaction chamber upstream of the substrate during the first pulse, and allowing the second vapor-phase reactant from the second inflow channel to mix with the inactive gas from the first inflow channel within the reaction chamber upstream of the substrate during the second pulse.

43 (Previously presented) The method of Claim 41, wherein a volume of at least 3X of inactive gas is moved through the reaction space in the interval between each two successive pulses of the first and second vapor-phase reactants.

44. (Previously presented) The method of Claim 41, wherein a volume of at least 2X of inactive gas is moved through the reaction space so that residual components of an immediately preceding vapor-phase reactant pulse remaining in the reaction chamber are reduced to a level of less than 1 % during the interval prior to the inflow of a subsequent vapor-phase pulse.

45. (Previously presented) The method of Claim 41, wherein a volume of at least 2X of inactive gas is moved through the reaction space so that residual components of an immediately preceding vapor-phase reactant pulse remaining in the reaction chamber are reduced to a level of less than 0.1 % during the interval prior to the inflow of a subsequent vapor-phase pulse.